

## AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A process for producing a high purity synthetic quartz powder, the process comprising

baking a silica gel powder made by a wet process, or a synthetic quartz powder made from the silica gel powder, under a low pressure atmosphere simultaneously at a pressure of less than 100 Pa and at a baking temperature, T, in a range of ~~from more than 600°C to less than 1400°C~~ 600°C < T < 1400°C.

Claim 2 (Currently Amended): A process for producing a high purity synthetic quartz powder, the process comprising

baking a silica gel powder, made by a wet process, to form a synthetic quartz powder, where the baking is in air at atmospheric pressure and at a temperature in a range higher than a temperature at which hydroxyl groups are removed from the silica gel powder and lower than a temperature at which the silica gel powder sinters; and

baking the synthetic quartz powder under a low pressure atmosphere simultaneously at a pressure of less than 100 Pa and at a baking temperature, T, in a range of ~~from more than 600°C to less than 1400°C~~ 600°C < T < 1400°C.

Claim 3 (Original): The process according to Claim 2, wherein  
the air at atmospheric pressure is dry air or an oxidizing atmosphere;  
the baking temperature in the air at atmospheric pressure is in a range from more than  
800°C to less than 1400°C; and  
the synthetic quartz powder is baked in the air at atmospheric pressure for a baking  
time of 5 to 70 hours.

Claim 4 (Previously Presented): The process according to Claims 1 or 2, wherein the  
low pressure atmosphere is at a pressure of less than 50 Pa.

Claim 5 (Original): The process according to Claims 1 or 2, wherein the baking under  
the low pressure atmosphere is finished when the low pressure atmosphere reaches a  
preselected pressure.

Claim 6 (Original): The process according to Claim 5, wherein the preselected  
pressure is less than 5 Pa.

Claims 7-9 (Canceled)

Claim 10 (Previously Presented) The process according to Claims 1 or 2, wherein the  
baking under the low pressure atmosphere forms a synthetic quartz powder having a carbon  
content of less than 2 ppm.

**Claim 11 (Previously Presented)** The process according to Claims 1 or 2, wherein the baking under the low pressure atmosphere forms a synthetic quartz powder having a hydroxyl group content of less than 50 ppm.

## SUPPORT FOR THE AMENDMENTS

This Amendment amends Claims 1-2. Support for the amendments is found in the specification and claims as originally filed. The amendment replacing "baking ... under a low pressure atmosphere at a pressure of less than 100 Pa and at a baking temperature ... in a range ..." with --baking ... under a low pressure atmosphere *simultaneously* at a pressure of less than 100 Pa and at a baking temperature ... in a range ...-- does not narrow Claims 1-2. In addition, the amendment replacing "a baking temperature in a range of from more than 600°C to less than 1400°C" with --a baking temperature, T, in a range of  $600^{\circ}\text{C} < T < 1400^{\circ}\text{C}$ -- does not narrow Claims 1-2. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-6 and 10-11 will be pending in this application. Claims 1 and 2 are independent.

## REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the courtesies extended to their representative during the September 16, 2003, personal interview.

As discussed at the interview, the present invention provides a process for producing high purity synthetic quartz powder in which vacuum baking at a pressure of less than 100 Pa and a temperature, T, in a range  $600^{\circ}\text{C} < T < 1400^{\circ}\text{C}$  can result in a powder having a carbon content of less than 2 ppm and a hydroxyl group content of less than 50 ppm.

Claims 1-6 are rejected under 35 U.S.C. §103(a) over U.S. Patent 5,145,510 ("Saito") in view of Chemical Engineers Handbook.

Saito discloses a process for obtaining a high purity silica glass powder that involves three steps. In the first step, a gel is dried by heating the gel under vacuum or in an inert atmosphere at a temperature of from 100° to 200°C. Saito at column 3, lines 29-31. In the second step, the dried silica gel is baked in a gas containing steam at a temperature within a range of from 1000° to 1400°C. Saito at column 3, lines 42-55. Saito does not explicitly disclose the pressure at which the baking in steam occurs, thus implying that the baking in steam occurs around atmospheric pressure and not under a vacuum. In Saito's third step, silica glass powder obtained by the baking in steam is vacuum fused at a temperature of from 1800° to 2300°C. Saito at column 4, line 66 to column 5, line 1.

Thus, Saito discloses processing in vacuum only at a temperature higher than (1800° to 2300°C) or lower than (100° to 200°C) the recited "temperature, T, in a range of 600°C < T < 1400°C".

As a result, Saito fails to suggest the limitation of independent Claims 1 and 2 of "baking ... under a low pressure atmosphere simultaneously at a pressure of less than 100 Pa and at a baking temperature, T, in a range of 600°C < T < 1400°C".

Chemical Engineers Handbook fails to remedy the deficiencies of Saito. Chemical Engineers Handbook is cited for disclosing levels of vacuum required to perform vacuum dehydration. Office Action at page 4, lines 17-19.

Because the cited prior art fails to suggest all the limitations of the claimed invention, the rejection over Saito in view of Chemical Engineers Handbook should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Respectfully submitted,

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